CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

**ORDER 97-051**

**ADOPTION OF FINAL SITE CLEANUP REQUIREMENTS AND RESCISSION OF ORDER NO. 90-041:**

**IMO INDUSTRIES INC.**
**FORMER TRANSAMERICA DELAVAL PLANT**
**550 85TH AVENUE**
**OAKLAND, ALAMEDA COUNTY**

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter Board), finds that:

1. **Site Location:** The former Transamerica Delaval Plant (Site) is located at 550 85th Avenue in the City of Oakland, Alameda County (see Figure One). The property encompasses approximately 60 acres of flat lying land bounded generally by 85th, Edes and Railroad Avenues and Clara and Louisiana Streets. A tributary of Elmhurst Creek runs through the Site. The approximately 46 acre portion of the Site situated south of Elmhurst Creek has historically been referred to as the Enterprise Engine Division parcel. The approximately 14 acre portion of the Site situated north of Elmhurst Creek has historically been referred to as the Railroad Avenue parcel. The Site is currently zoned for industrial use and it is expected that the Site will be redeveloped for commercial and industrial uses.

2. **Site History**: The Enterprise Engine Division parcel was used for foundry operations from the early 1940s until 1986. Beginning in the 1960s, the Enterprise Engine Division parcel was also used to manufacture, repair, and test large-scale reciprocating engines for electrical power generation and maritime applications.

   The Railroad Avenue parcel was the former location of various foundries and factories, including a malleable iron and brass foundry/wheel manufacturing plant, from the 1920s through the late 1950s. The manufacturing buildings were demolished in 1965 or 1966.

   During the period that foundries, factories, and an engine manufacturing facility existed at the Site, chemical handling included use of bunker oil, diesel fuel, polychlorinated biphenyls, gasoline, chlorinated solvents, plating solutions, and organic binding agents.

   Organic binding agents were used for forming sand molds for the castings operations. Once the molten metal was poured into the mold and cooled, the sand mold was

removed. Spent sands containing charred binding agents were disposed of throughout much of the open acreage adjacent to the facility. As a result of the casting, the sand and binding agents were heated to high temperature, charring the binding agents and forming polynuclear aromatic hydrocarbons (PNAs) from them. This has resulted in the widespread distribution of PNA affected sands being spread over the site. In addition to the release of PNAs in casting sands, petroleum hydrocarbons were also released to soil.

A release of chlorinated solvents, consisting primarily of 1,1,1-trichlorethane (1,1,1-TCA), was discharged from a 200-gallon above ground storage tank located in the Machine Shop Vapor Degreaser/Storm Drain Area, impacting soil and shallow groundwater (Figure Two).

All operations at the Site ceased in the late 1980s. The buildings and improvements at the Site are currently being demolished. Imo Industries Inc., the present owner, is currently negotiating to sell the Site.

3. **Named Dischargers and Regulatory Status:** Imo Industries Inc. (IMO) is the successor in interest to the companies who owned and operated the Site during the time discharges occurred. IMO is hereinafter referred to as a discharger. If additional information is submitted indicating that other parties caused or permitted any waste to be discharged at the Site where it entered or could have entered waters of the State, the Board will consider adding that party's name to this Order.

   The Board adopted Site Cleanup Requirements (SCR) Order No. 90-041 for the property. SCR Order 90-041 required the discharger to characterize the extent of groundwater pollution, assess the efficacy of interim remedial measures, and implement additional remedial actions to achieve cleanup objectives. The Board is the recognized lead agency for cleanup of this Site. The Site is designated by the City of Oakland as a Brownsfield Project.

4. **Site Hydrogeology:** The Site is located within the East Bay Plain, an area that includes alluvial and fluvial deposits. Groundwater generally flows east to west, from the mountains to the Bay. The subsurface at the Site is described as consisting of a shallow groundwater zone and a deeper groundwater zone. The top of the shallow groundwater zone is typically encountered at a depth of approximately 10 feet below ground surface (bgs). Gravels and sands in the shallow groundwater zone vary in thickness from approximately 10 to 20 feet. The deeper permeable unit or groundwater zone is typically encountered at a depth of approximately 40 to 50 feet, bgs. A layer of silts and clays, varying in thickness from approximately 10 to 20 feet, separates the shallow groundwater zone from this next deeper groundwater zone beneath the Site..

5. **Adjacent Sites:** Chemical releases at adjacent sites have affected portions of the subsurface at the Site as documented in reports submitted to the Board. Chlorinated solvents have been detected in soil gas samples collected off the Site to the west of

the Railroad Avenue parcel, along 85th Avenue and Baldwin Street. These solvents are thought to originate from an offsite source(s) located northwest of the Site. Chlorinated solvents have also been detected in groundwater samples collected along the edge of the Site that borders Edes Avenue. The source of chlorinated solvents in groundwater along Edes Avenue is suspected to be chemical releases from one or more sites located southeast of the Site to an open drainage ditch that formerly ran along Edes Avenue. This ditch was covered when the City of Oakland widened Edes Avenue in approximately 1984.

Based on documents submitted to the Board, neither the discharger nor future owners or occupants of the Site shall be required to further investigate or take remedial action with respect to the following groundwater plumes originating from offsite source(s): (1) the existing chlorinated solvents detected in soil gas along 85th Avenue and Baldwin Street, nor (2) the existing chlorinated solvents detected in shallow groundwater along the portion of the Site that borders Edes Avenue. However, the Board may hold the discharger and/or future owners and occupants of the property responsible for investigation or cleanup tasks if he or she refuses to provide reasonable access to an upgradient discharger attempting to investigate and cleanup off-site groundwater pollution.

6. **Documents Submitted to the Board:** The discharger has submitted numerous reports to the Board regarding investigative and remedial activities at the Site. Most of these reports were submitted prior to adoption of SCR Order 90-041. Listed in sections 7.a. and 7.b. are the primary documents that have been submitted to address soil and groundwater investigative and remedial issues at the Site.

   a. Prior to adoption of SCR Order No. 90-041, the discharger submitted the following primary documents to the Board concerning the Site:

      - Environmental Assessment Report, Kennedy/Jenks/Chilton, May 31, 1988

      - Individual Closure Reports for Areas 1 through 14, Kennedy/Jenks/Chilton, August 18, 1988 through April 19, 1989

      - Groundwater Treatment System Design Report, Kennedy/Jenks/Chilton, March 31, 1989

      - Hydrogeologic Summary Report, Volumes I and II, Kennedy/Jenks/Chilton, June 30, 1989

      - Surface Soil Characterization and Remedial Action Plan Report, Kennedy/Jenks/Chilton, July 21, 1989

      - Closure Report – Railroad Avenue Parcel, Kennedy/Jenks/Chilton,

b. Subsequent to adoption of SCR Order No. 90-041, the discharger submitted the following primary documents to the Board concerning the Site:

- Groundwater Remedial Action Plan/Feasibility Study, Erler & Kalinowski, Inc., May 1, 1990

- Request to Terminate Operation of Groundwater Extraction and Treatment System and Discontinue Groundwater Monitoring, Erler & Kalinowski, Inc., October 15, 1996

- Risk Management Plan, Erler & Kalinowski, Inc., February 27, 1997,

7. **Soil and Groundwater Investigative and Remedial Activities:** Soil and groundwater investigative and remedial activities have been ongoing at the Site since 1987. Investigative and remedial activities performed prior to 1990 were approved through adoption of SCR Order No. 90-041. Investigative and remedial activities after 1990 have been conducted in accordance with the requirements of SCR Order No. 90-041.

**a. Soil:** Investigations resulted in the identification of the Railroad Avenue parcel and fourteen locations on the Enterprise Engine Division parcel as areas of concern at the Site. The discharger has characterized and remediated these areas under Regional Board oversight (a remediation summary of the 15 areas is presented in the October 19, 1989, Closure Reports Compendium, prepared by Kennedy/Jenks/Chilton). Soil remedial actions included excavating and aerating or bioremediating a total of approximately 40,000 cubic yards of soil that contained bunker oil, diesel fuel, gasoline, or chlorinated solvents. These actions were effective in the remediation of known sources of contaminated soil which had the potential for release of chemicals of concern to groundwater.

Approximately 300,000 to 500,000 cubic yards of casting sands containing PNAs are spread over the surface throughout the Site. These PNAs remain tightly bound to the casting sands and do not represent a threat to groundwater due to the low solubility and mobility. PNAs have not been detected in any groundwater samples collected throughout the Site. Additionally, the sands can be covered with an engineered cap to minimize exposure and mitigate any potential health concerns.

**b. Groundwater:** No impacts to groundwater were detected from historical releases of petroleum hydrocarbons at the Site. The primary impact to groundwater resulting from historical operations was the release of 1,1,1-TCA in the Machine Shop Vapor Degreaser/Storm Drain Area (Figure Two). The area of impacted shallow groundwater at the Site due to this release is shown

on Figure Two.

Between 1989 and 1995, a groundwater extraction and treatment system consisting of two extraction wells and an air stripping tower with vapor-phase granular activated carbon was operated to abate the effects of the 1,1,1-TCA release. The discharger operated the groundwater extraction and treatment system pursuant to the requirements of SCR Order No. 90-041 and National Pollutant Discharge Elimination System Permit (NPDES) Permit No. CA 0029521.

Chlorinated solvents in groundwater consisted primarily of 1,1,1-TCA and the degradation product 1,1-dichloroethene (1,1-DCE). The system was operated until 1,1,1-TCA and 1,1-DCE mass removal rates and concentrations in extraction wells and monitoring wells reached asymptotic levels. The discharger reported that approximately 900 lbs of 1,1,1-TCA and 350 lbs of 1,1-DCE were removed from the approximate 100,000,000 gallons of groundwater pumped from the extraction wells. The system was shut off in June 1995 with the approval of Board staff. No significant rise in halogenated volatile organic compound (HVOC) concentrations were observed in groundwater after shutting-off the system. Recent groundwater sampling results indicate that only on-site monitoring well MW-6 contains 1,1-DCE concentrations that are above Maximum Contaminant Level (MCL) of 6 ug/l which is attributable to the 1,1,1-TCA release that occurred at the Site. Concentrations of 1,1-DCE in this well ranged from 12 to 60 ug/l over the past four sampling events. Some additional groundwater monitoring data is needed to determine the effectiveness of the groundwater remediation program and to evaluate the need for further action.

8. **Risk Management Plans:** The discharger proposes to mitigate risks associated with residual chemicals in soil and groundwater at the Site by requiring that: (1) all soil containing PNAs above specified cleanup levels be covered during redevelopment, (2) any soil containing petroleum hydrocarbons and/or chlorinated solvents above specified cleanup levels encountered during demolition and redevelopment be excavated and properly treated or disposed, and (3) groundwater use at the Site be restricted through enforcement of a recorded Environmental Restriction. These actions are to be conducted in accordance with the procedures outlined in the February 27, 1997, Risk Management Plan. The Board finds this report acceptable.

This Order requires the discharger to implement the Risk Management Plan for the entire Site and to monitor groundwater conditions in the area of the Site that comprises the Machine Shop Vapor Degreaser/Storm Drain Area (see Figure Two). It is anticipated that the groundwater cleanup standards will be met at the Site in a few years. Following 18 months of groundwater monitoring, the Board will evaluate the effectiveness of the groundwater cleanup program. The Board reserves the right to take additional action.

9. **Risk Assessment:** In connection with soil cleanup the discharger has conducted a human health and environmental risk assessment to derive risk-based cleanup levels for chemicals of concern in soil at the Site. The results of the risk assessment and derivation of cleanup levels are included in the Risk Management Plan, dated February 27, 1997, and prepared by Erler & Kalinowski, Inc. (Risk Management Plan). Soil cleanup levels for HVOCs, PNAs, and benzene, toluene, ethylbenzene, and xylenes (BTEX) concentrations are set so that the cumulative risk from these chemicals in soil do not exceed a hazard index of one and a $10^{-5}$ excess cancer risk. These cleanup levels are also protective of existing ground and surface water quality at the Site.

For comparison, the Board typically considers the following risks to be acceptable at remediation sites: a hazard index of 1.0 or less for non-carcinogens, and an excess cancer risk of $10^{-4}$ or less for carcinogens. The discharger's proposed cleanup levels are more stringent than these risk levels.

10. **Basis for Cleanup Standards**

a. **General:** State Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California," applies to this discharge and requires attainment of background levels of water quality, or the highest level of water quality which is reasonable if background levels of water quality cannot be restored. Cleanup levels less than background must be consistent with the maximum benefit to the people of the State, not unreasonably affect present and anticipated beneficial uses of such water, and not result in exceedance of applicable water quality objectives.

State Board Resolution No. 92-49, "Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304," applies to this discharge. This order and its requirements are consistent with the provisions of Resolution No. 92-49, as amended.

b. **Beneficial Uses:** The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on June 21, 1995. This updated and consolidated plan represents the Board's master water quality control planning document. The revised Basin Plan was approved by the State Water Resources Control Board and the Office of Administrative Law on July 20, 1995, and November 13, 1995, respectively. A summary of regulatory provisions is contained in 23 CCR 3912. The Basin Plan defines beneficial uses and water quality objectives for waters of the State, including surface waters and groundwaters.

Board Resolution No. 89-39, "Sources of Drinking Water," defines potential sources of drinking water to include all groundwater in the region, with limited exceptions for areas of high TDS, low yield, or naturally-high contaminant levels. Groundwater underlying and adjacent to the site qualifies

as a potential source of drinking water.

The Basin Plan designates the following potential beneficial uses of groundwater underlying and adjacent to the Site:

a. Municipal and domestic water supply
b. Industrial process water supply
c. Industrial service water supply
d. Agricultural water supply

At present, there is no known use of groundwater underlying or adjacent to the Site for any of the above purposes.

c. **Basis for Soil Cleanup Standards**: The Board's cleanup standard for volatile organic compounds (VOCs) is 1 mg/kg in soil. The Board's cleanup standard for semivolatile organic compounds (SVOCs) is 10 mg/kg in soil. No cleanup standards have been established by the Board for total petroleum hydrocarbons in soil. Alternative cleanup levels may be proposed based on site specific data. Cleanup levels greater than background must be consistent with the maximum benefit to the people of the State, not unreasonably affect present and anticipated beneficial uses of such water, and not result in exceedance of applicable water quality objectives. If site specific levels are proposed, the discharger must demonstrate through risk assessment that these levels will not threaten the quality of waters of the State, and that human health and the environment are protected. The discharger has conducted a risk assessment and has proposed risk based cleanup standards for soil.

d. **Basis for Groundwater Cleanup Standards:** The groundwater cleanup standard for the Site is based on applicable water quality objectives and are the more stringent of EPA and California primary Maximum Contaminant Levels (MCLs). Cleanup to these levels will result in acceptable residual risk to humans.

11. **Scope of this Order:** This Order rescinds SCR Order 90-041, requires implementation of the Risk Management Plan and requires recording of institutional controls on the deed to the property.

12. **Basis for 13304 Order:** The discharger has caused or permitted waste to be discharged or deposited where it is or probably will be discharged into waters of the State and creates or threatens to create a condition of pollution or nuisance.

13. **Cost Recovery:** Pursuant to California Water Code Section 13304, the discharger is hereby notified that the Board is entitled to, and may seek reimbursement from the discharger for, all reasonable costs actually incurred by the Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this Order.

14. **CEQA:** This action is an order to enforce the laws and regulations administered by the Board. As such, this action is categorically exempt from the provisions of the California Environmental Quality Act (CEQA) pursuant to Section 15321 of the Resources Agency Guidelines.

15. **Notification:** The Board has notified the discharger and all interested agencies and persons of its intent under California Water Code Section 13304 to prescribe site cleanup requirements for the discharge, and has provided them with an opportunity to submit their written comments.

16. **Public Hearing:** The Board, at a public meeting, heard and considered all comments pertaining to this discharge.

**IT IS HEREBY ORDERED**, pursuant to Section 13304 of the California Water Code, that the discharger (or its agents, successors, or assigns), as specified below shall cleanup and abate the effects described in the above findings as follows:

## A. PROHIBITIONS

1. The discharge of wastes or hazardous substances in a manner which will degrade water quality or adversely affect beneficial uses of waters of the State is prohibited.

2. Further significant migration of wastes or hazardous substances through subsurface transport to waters of the State is prohibited.

3. Activities associated with the subsurface investigation and cleanup which will cause significant adverse migration of wastes or hazardous substances are prohibited.

## B. CLEANUP PLAN AND STANDARDS

1. **Implement Cleanup Plan:** The discharger and future owners and occupants of the Site shall implement the Risk Management Plan described in finding 8. Soil and groundwater cleanup requirements have been completed other than those contained in the Risk Management Plan and this Order. Except for the Machine Shop Vapor Degreaser/Storm Drain Area, all groundwater monitoring requirements with respect to the Site are terminated. The discharger shall monitor groundwater in the Machine Shop Vapor Degreaser/Storm Drain Area pursuant to the attached Self-Monitoring Program. Following 18 months of groundwater monitoring, the discharger shall submit a report to the Executive

Officer evaluating the effectiveness of the groundwater remediation program. All groundwater monitoring wells other than monitoring well MW-6 may be abandoned in accordance with applicable laws and regulations. The groundwater extraction and treatment system operated by the discharger may be removed and demolished.

2. **Soil Cleanup Standards:** Soil cleanup standards as specified in the Risk Management Plan for HVOCs, PNAs, and BTEX shall be met in all on-site vadose-zone soils.

3. **Groundwater Cleanup Standards:** The following groundwater cleanup standards shall be met in all wells identified in the Self-Monitoring Program:

| Constituent | Cleanup Standard (ug/l) | Basis |
|---|---|---|
| 1,1,1-trichloroethane | 200 | California MCL |
| 1,1-dichloroethene | 6 | California MCL |
| 1,1-dichloroethane | 5 | California MCL |
| cis-1,2-dichloroethene | 6 | California MCL |

## C. TASKS

### 1. IMPLEMENT RISK MANAGEMENT PLAN

**Due Date:** Prior to sale of the Site and no later than October 15, 1997

**Description:** The discharger and future owners and occupants of the Site shall implement the Risk Management Plan described in finding 8.

### 2. PROPOSE AND RECORD INSTITUTIONAL CONSTRAINTS

**Due Date:** No later than July 1, 1997 or before sale of the Site by the discharger

**Description:** Institutional constraints in the form of an Environmental Restriction under California Civil Code § 1471 in form and substance satisfactory to the Executive Officer shall be recorded against the Site. The document shall require the discharger and future owners and occupants of the Site to comply with the Risk Management Plan. The document shall also prohibit use of groundwater beneath the Site without the prior written consent

of the Executive Officer. The dischargers shall record the document and submit copies to the Board within 30 days after approval of draft form by the Executive Officer.

3. **EVALUATION OF EFFECTIVENESS OF GROUNDWATER TREATMENT PROGRAM**

**Due Date:** October 1, 1998

**Description:** The discharger shall submit a technical report acceptable to the Executive Officer evaluating the effectiveness of the groundwater remediation program. If groundwater cleanup standards have not been achieved, the report shall propose an appropriate response acceptable to the Board.

## D. PROVISIONS

1. **No Nuisance:** The storage, handling, treatment, or disposal of soil or groundwater containing chemicals of concern shall not create a nuisance as defined in California Water Code Section 13050(m).

2. **O&M:** The discharger and/or future owners and operators as applicable shall maintain in good working order and operate as efficiently as possible any facility or control system installed to achieve compliance with the requirements of this Order.

3. **Cost Recovery:** The discharger shall be liable, pursuant to California Water Code Section 13304, to the Board for all reasonable costs actually incurred by the Board to investigate unauthorized discharges of waste by the discharger and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action regarding such discharges, required by this Order. If the site addressed by this Order is enrolled in a State Board-managed reimbursement program, reimbursement shall be made pursuant to this Order and according to the procedures established in that program. Any disputes raised by the discharger over reimbursement amounts or methods used in that program shall be consistent with the dispute resolution procedures for that program.

4. **Access to Site and Records:** In accordance with California Water Code Section 13267(c), the discharger and future owners and operators shall permit the Board or its authorized representative:

   a. Entry upon premises in which any pollution source exists, or may potentially exist, or in which any required records are kept, which are relevant to this Order.

b. Access to copy any records required to be kept under the requirements of this Order.

c. Inspection of any monitoring or remediation facilities installed in response to this Order.

d. Sampling of any groundwater or soil which is accessible, or may become accessible, as part of any investigation or remedial action program undertaken by the discharger.

5. **Self-Monitoring Program:** The discharger shall comply with the Self-Monitoring Program as attached to this Order and as may be amended by the Executive Officer.

6. **Contractor/Consultant Qualifications:** All technical documents shall be signed by and stamped with the seal of a California registered geologist, or a California certified engineering geologist, or a California registered civil engineer.

7. **Lab Qualifications:** All samples shall be analyzed by State-certified laboratories or laboratories accepted by the Board using approved EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control (QA/QC) records for Board review. This provision does not apply to analyses that can only reasonably be performed on-site (e.g. temperature).

8. **Document Distribution:** Copies of all correspondence, technical reports, and other documents pertaining to compliance with this Order shall be provided to the following agencies:

a. County of Alameda Department of Environmental Health
b. Department of Toxic Substances Control

9. **Reporting of Changed Owner or Operator:** The discharger shall submit a technical report to the Board on any changes in the ownership of the Site or portion thereof described in this Order. The discharger is required to notify its transferee(s) of the Site of the existence of this Order and the requirement to comply with the Risk Management Plan.

10. **Reporting of Hazardous Substance Release:** If any hazardous substance is discharged in or on any waters of the State, or discharged or deposited where it is, or probably will be, discharged in or on any waters of the State, the discharger shall report such discharge to the Regional Board by calling (510) 286-1255 during regular office hours (Monday through Friday, 8:00 to 5:00).

A written report shall be filed with the Board within five working days. The

report shall describe: the nature of the hazardous substance, estimated quantity involved, duration of incident, cause of release, estimated size of affected area, nature of effect, corrective actions taken or planned, schedule of corrective actions planned, and persons/agencies notified.

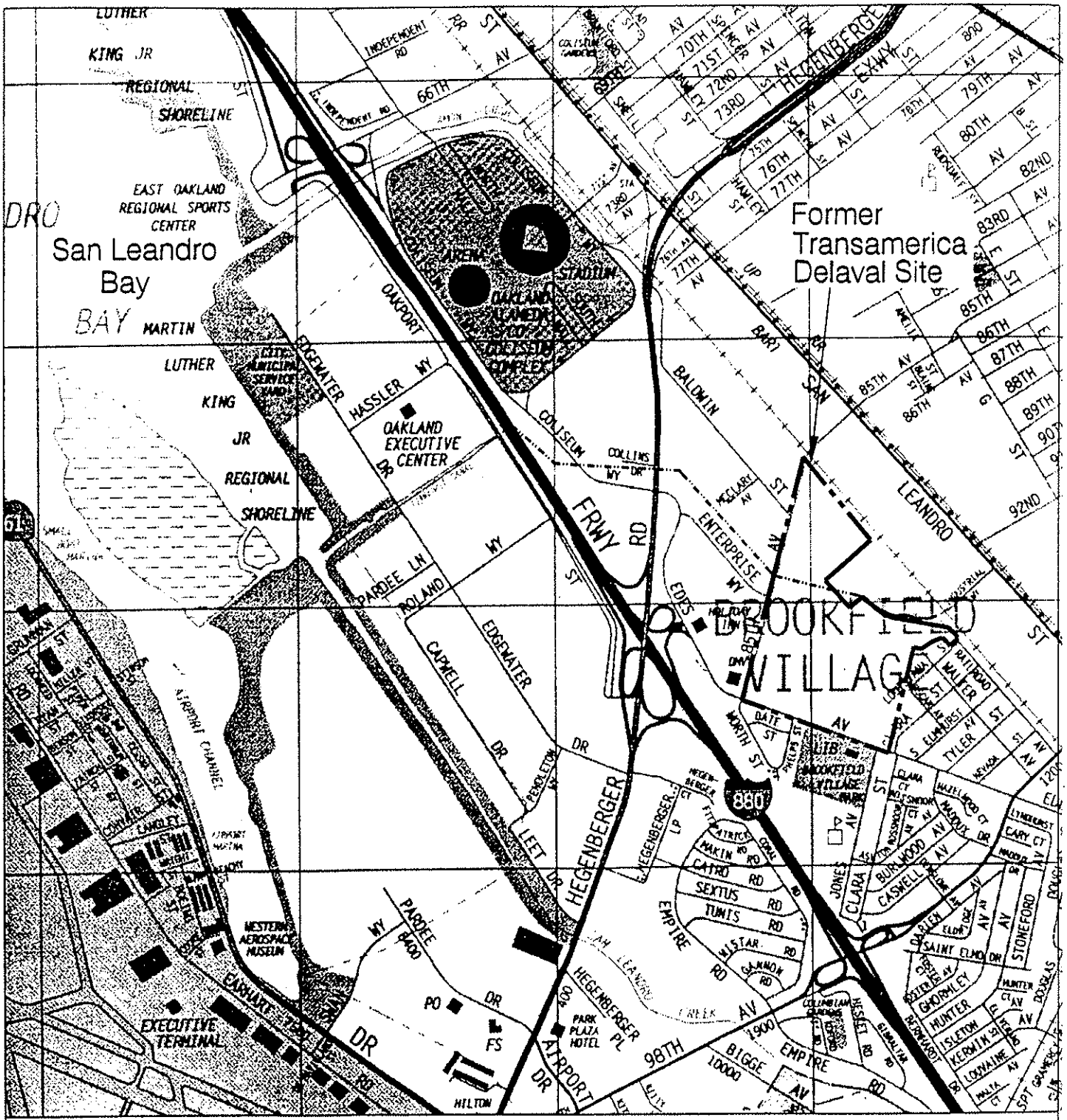
This reporting is in addition to reporting to the Office of Emergency Services required pursuant to the Health and Safety Code.

11. **Rescission of Existing Order:** This Order rescinds Order No. 90-041.

12. **Periodic SCR Review**: The Board will review this Order periodically and may revise it when necessary.

I, Loretta K. Barsamian, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on April 16, 1997.

Loretta K. Barsamian
Executive Officer




Basemap: The Thomas Guide, Alameda/Contra Costa Counties, Alameda Co. map # 670, 1997 Edition.

N

0 2100 4200

(Approximate Scale in Feet)

LEGEND

Site Boundary

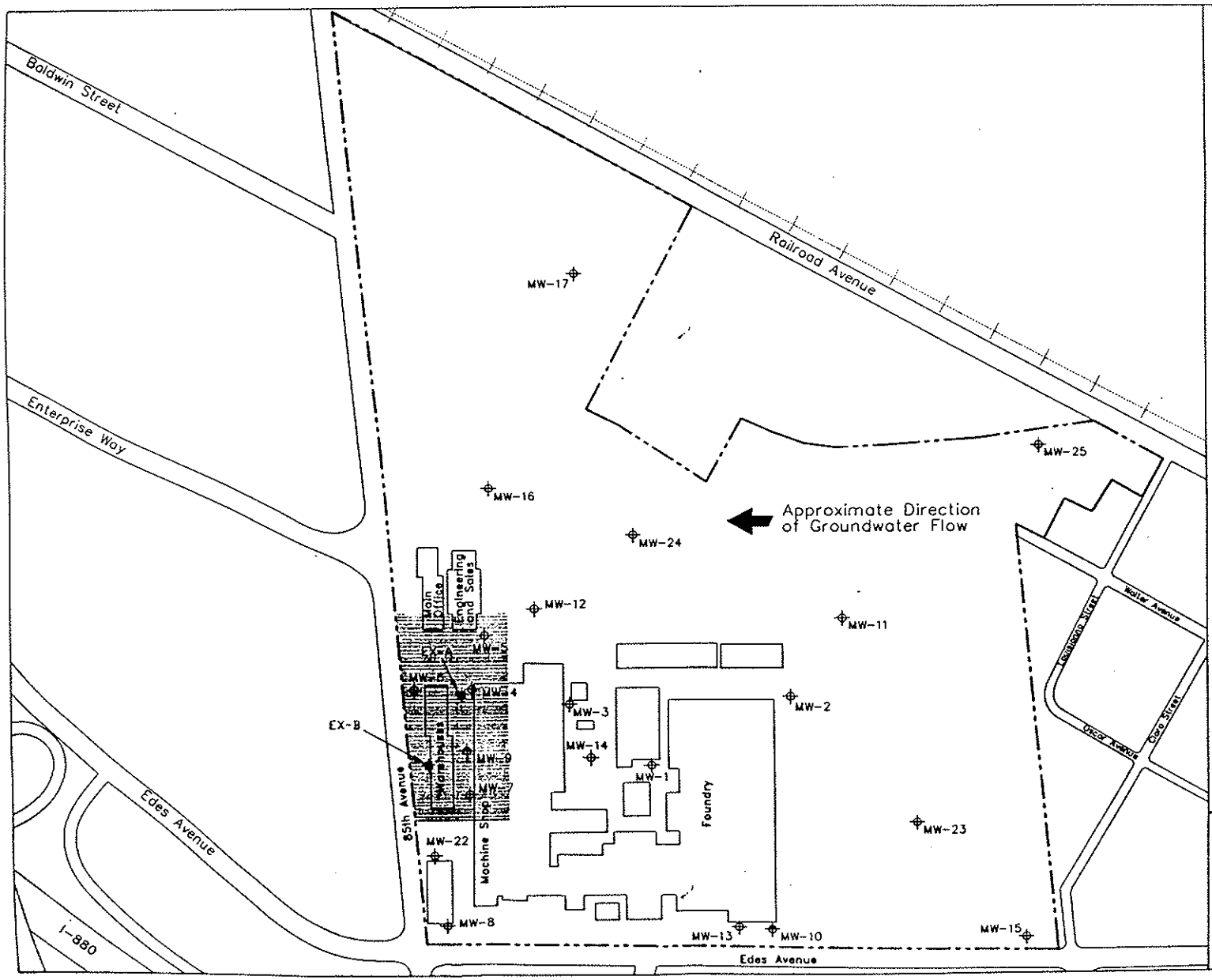
Approximate Location of Elmhurst Creek

**Erler & Kalinowski, Inc.**

Vicinity Map

Former Transamerica Delaval
Oakland, CA
February 1997
EKI 890029.00

Figure 1




N

0 250 500

(Approximate Scale in Feet)

LEGEND

- Site Boundary
- Shallow Zone Monitoring Well
- Deep Zone Monitoring Well
- Extraction Wells
- Machine Shop Vapor Degreaser/ Storm Drain Area

Notes:

1. All locations are approximate.
2. Base developed from aerial photograph by Pacific Aerial, flown 30 March 1988.

**Erler & Kalinowski, Inc.**

Machine Shop Vapor Degreaser/Storm Drain Area

Former Transamerica Delaval
Oakland, CA
February 1997
EKI 890029.00
Figure 2

97 Feb 20 C:\ACADR13\MHO2-ORDER

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM FOR:

IMO INDUSTRIES INC.

for the property located at

FORMER TRANSAMERICA DELAVAL PLANT SITE
550 85TH AVENUE
OAKLAND, ALAMEDA COUNTY

1. **Authority and Purpose**: The Board requests the technical reports required in this Self-Monitoring Program pursuant to Water Code Sections 13267 and 13304. This Self-Monitoring Program is intended to document compliance with Board Order No. 97-051 (Site Cleanup Requirements).

2. **Monitoring**: The discharger shall measure groundwater elevations quarterly in monitoring well MW-6, and shall collect and analyze representative samples of groundwater according to the following table:

| Well No. | Sampling Frequency | Analyses |
|---|---|---|
| MW-6 | Semi-Annually | EPA Method 8010 or equivalent |

The discharger shall sample any new monitoring or extraction wells quarterly and analyze groundwater samples for the same constituents as shown in the above table. The discharger may propose changes in the above table; any proposed changes are subject to Executive Officer approval.

1. **Annual Monitoring Reports**: The discharger shall submit annual monitoring reports to the Board for monitoring performed during April of each year no later than May 31 of each year. The first annual monitoring report shall be due on May 31, 1997. The reports shall include:

   a. Transmittal Letter: The transmittal letter shall discuss any violations during the reporting period and actions taken or planned to correct the problem. The letter shall be signed by the discharger's principal executive officer or his/her duly authorized representative, and shall include a statement by the official, under penalty of perjury, that the report is true and correct to the best of the official's knowledge.

b. Groundwater Analyses: Groundwater sampling data shall be presented in tabular form, and an isoconcentration map should be prepared for one or more key contaminants for each monitored water-bearing zone, as appropriate. The report shall indicate the analytical method used, detection limits obtained for each reported constituent, and a summary of QA/QC data. Historical groundwater sampling results shall be included. The report shall describe any significant increases in contaminant concentrations since the last report, and any measures proposed to address the increases. Supporting data, such as lab data sheets, need not be included (however, see record keeping - below).

c. Groundwater Extraction: If applicable, the report shall include groundwater extraction results in tabular form, for each extraction well and for the site as a whole, expressed in gallons per minute and total groundwater volume for the quarter. The report shall also include contaminant removal results, from groundwater extraction wells and from other remediation systems (e.g. soil vapor extraction), expressed in units of chemical mass per day and mass for the quarter. Historical mass removal results shall be included.

d. Status Report: The quarterly report shall describe relevant work completed during the reporting period (e.g. site investigation, interim remedial measures) and work planned for the following year.

1. **Violation Reports**: If the discharger violates requirements in the Site Cleanup Requirements, then the discharger shall notify the Board office by telephone as soon as practicable once the discharger has knowledge of the violation. Board staff may, depending on violation severity, require the discharger to submit a separate technical report on the violation within five working days of telephone notification.

2. **Other Reports**: The discharger shall notify the Board in writing prior to any site activities, such as construction or underground tank removal, which have the potential to cause further migration of contaminants or which would provide new opportunities for site investigation.

3. **Record Keeping**: The discharger or his/her agent shall retain data generated for the above reports, including lab results and QA/QC data, for a minimum of six years after origination and shall make them available to the Board upon request.

4. **SMP Revisions**: Revisions to the Self-Monitoring Program may be ordered by the Executive Officer, either on his/her own initiative or at the request of the discharger. Prior to making SMP revisions, the Executive Officer will consider the burden, including costs, of associated self-monitoring reports relative to the benefits to be obtained from these reports.

I, Loretta K. Barsamian, Executive Officer, hereby certify that this Self-Monitoring Program was adopted by the Board on April 16, 1997.

Loretta K. Barsamian
Executive Officer